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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,603	02/21/2002	Stein Inge Pedersen	57.0422	9598

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Intellectual Property Law Department
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Ridgefield, CT 06877

EXAMINER

PATEL, SHEFALI D

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/081,603	Applicant(s) PEDERSEN, STEIN INGE	
	Examiner Shefali D. Patel	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Amendment

1. The amendment was filed on June 20, 2005.
2. Claim 13 has been cancelled.
3. Claims 1-12 and 14-31 are pending in this application.
4. There is a minor 35 U.S.C. 101 issue with claim 31. See the rejection below.

Response to Arguments

5. Applicant's arguments filed on June 20, 2005 (pages 6-7) of the Remarks have been fully considered but they are not persuasive.

Applicant argue on page 6 stating:

"...Applicant has replaced the phrase "at least hundreds of times" with the phrase at least 200 times". Applicant assert that one skilled in the art, when reading the present specification, would have understood these two phrases to be equivalent."

The examiner disagrees.

Where does the specification mention of these steps being repeated at least 200 times?? The examiner does not see these feature included in the original specification, as filed. How are these two phrases equivalent? Yes, the specification mentions the steps being repeated. However, it is not clear where it is defined that these steps are being repeated at least 200 times. The rejection is repeated as seen below. The examiner does not see this limitation specified in the specification. Appropriate correction required.

Applicant further argue on page 6 stating:

"...Applicant has cancelled claim 13 and incorporated this subject matter into each of the independent claims (claims 1, 30, and 31). The magnitude of the "pheromone value" associated with a cell (as this phrase is used in the specification) is determined by the number of agents that have detected and successfully traced a structure or structures passing through the cell. See, for instance, the last full paragraph on page 13 and the paragraph spanning pages 7 and 8. This concept is not disclosed or suggested by any of the prior art references."

The examiner disagrees.

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Schultz et al. discloses pheromone value associated with a cell (i.e., a cell is construed as a pixel) at paragraph 317 on page 25. Please note that applicant's argument regarding "pheromone value" being determined by the number of agents that have detected and successfully traced a structure or structures passing through the cell is unconvincing as this limitation does not appear in the claims (at least the independent claims, for example).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 14 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 14 recites steps (a) to (c) being repeated at least 200 times. The specification does not specify this clearly. The examiner notices that the "Swarm Intelligence" is disclosed on pages 5-6. However, there is nowhere in the specification where it is clear that the steps (a) through (c) are repeated at least 200 times. Appropriate correction required.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 31 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. "A computer program product..." claim is non-statutory because the terminology "computer program product" alone has no set definition. Claim 31 is drawn to functional descriptive

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material NOT claimed as residing on a computer readable medium. MPEP 2106.IV.B.1(a) (Functional Descriptive Material) states:

“Data structures not claimed as embodied in a computer-readable medium are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer.”

“Such claimed data structures do not define any structural or functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure’s functionality to be realized.”

Claim 31, while defining a computer program product does not define a “computer-readable medium” and is thus non-statutory for that reasons. A computer program product can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on “computer-readable medium” in order to make the claim statutory.

“In contrast, a claimed computer-readable medium encoded with the data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure’s functionality to be realized, and is thus statutory.” - MPEP 2106.IV.B.1(a)

NOTE: Claim 31 line 3 recites “a computer useable medium...” Perhaps, this ought to be “a computer readable medium.”

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. Claims 1-2, 4, 6-7, 11-12, 14, 24, 26, and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishisaka (US 6,289,126) in view of Schultz et al. (hereinafter, "Schultz") (US 2001/0002315 A1).

Note: a cell is construed as a pixel.

With regard to **claim 1** Ishisaka discloses a method of extracting desired features from a cellular image (determining a boundary of an object in an image at col. 4 lines 62-67, col. 5 lines 33-38, col. 8 lines 57-63) comprising the steps of: (a) Selecting an initial cell within said image (selecting an initial pixel at col. 9 line 63 to col. 10 line 14); (b) Selecting an additional cell, near said initial cell, appearing to be associated with a desired feature (selecting pixels in a "chain direction" at col. 10 lines 15-37); (c) Repeating step (b) for further cells, near at least one of said previously selected cells, appearing to be associated with said feature, until selection termination criteria are satisfied (col. 13 lines 54-60), and (d) Repeating steps (a) through (c) for other initial cells (col. 16 lines 1-17). Ishisaka does not expressly disclose pheromone value associated with the cell. Schultz discloses this at paragraph 317 on page 25. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Schultz with Ishisaka. The motivation for doing so is to monitor physical motion as suggested by Schultz at paragraph 317. Therefore, it would have been obvious to combine Schultz with Ishisaka to obtain the invention as specified in claim 1.

With regard to **claim 2** Ishisaka discloses image as 2D image and cells as pixels (col. 9 lines 55-62).

With regard to **claim 4** Ishisaka discloses image being noisy in the background at col. 1 lines 60-64 and that the features (i.e., boundaries) are weakly defined because Ishisaka discloses that sometime in the processes of chain code direction, the linking pixel may not be found at col. 8 lines 22-26.

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With regard to **claim 6** Ishisaka discloses data used to create said cellular image has been pre-processed to enhance the desired features in the cellular image (the image is enhanced so that features such as blood, cell, etc. can be visible in the image at col. 6 lines 13-53).

With regard to **claim 7** Ishisaka discloses initial cells are selected in step (a) by subdividing said cellular image into blocks (divided into 8x8, col. 6 lines 37-45) and selecting cells within said blocks having maximum values of an objective function (selecting blocks with pixel value 1 being the max value (as oppose to value '0' in the background) at col. 6 lines 54-57, col. 8 lines 35-47).

With regard to **claim 11** Ishisaka discloses the further cells are located within a tracing viewfield associated with at least one of said previously selected cells (the further cells are located within the 8x8 window as seen in Figures 10-13).

With regard to **claim 12** Ishisaka discloses the selection of cells in step (c) is positively influenced by the previous selection of said cells during previous iterations of step (c) (col. 13 lines 54-66).

With regard to **claim 14** Ishisaka discloses steps (a) through (c) are repeated at least hundreds of times (col. 16 lines 1-17).

With regard to **claim 24** Ishisaka discloses faults as particles in blood or a cell to be subjected to inspection at col. 6 lines 21-24.

With regard to **claim 26** Ishisaka discloses a CRT display device 5 at col. 6 lines 6-7.

Claims 30-31 recites identical features as claim 1 except claim 30 is a computer system/computer program on a computer readable medium claim. Thus, arguments similar to that presented above for claim 1 is equally applicable to claim 30. Applicant's attention is further invited to Figure 1 of Ishisaka where a computer system is disclosed.

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10. Claims 3, 5, 8-10, 15-17, 23, 25, and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishisaka (US 6,289,126) in view of Schultz et al. (hereinafter, "Schultz") (US 2001/0002315 A1) as applied to claims 1-2, 4, 6-7, 11-12, 14, 24, 26, and 30-31 above, and further in view of Ross et al. (hereinafter, "Ross") (US 6,608,628).

With regard to **claim 3** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose the image being a 3D image. Ross discloses a 3D image at col. 4 lines 17-20. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Ross with Ishisaka and Schultz. The motivation for doing so is to use a 3D image (as in Ross) instead of 2D (as in Ishisaka) to get the depth of the object in an image to determine the orientation as well as the 2D features. Therefore, it would have been obvious to combine Ross with Ishisaka and Schultz to obtain the invention as specified in claim 3.

With regard to **claim 5** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose plurality of features intersect and are extracted from image as different objects. Ross discloses plurality of features intersect and are extracted from image as different objects (col. 7 lines 52-63 and col. 9 lines 19-26). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Ross with Ishisaka. The motivation for doing so is to extract features without losing surface integrity or topography as suggested by Ross at col. 7 lines 59-63. Therefore, it would have been obvious to combine Ross with Ishisaka to obtain the invention as specified in claim 5.

With regard to **claims 8-10** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose orientation of an object in an image. Ross discloses

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orientation of an object in an image at col. 11 lines 58-66. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Ross with Ishisaka. The motivation for doing so is to get the depth of the object in an image by determining the orientation as well as the 2D features. Therefore, it would have been obvious to combine Ross with Ishisaka to obtain the invention as specified in claims 8-10.

With regard to **claims 15-17** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose segments of an object that are later merged. Ross discloses segments of an object that are later merged at col. 9 lines 29-54. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Ross with Ishisaka. The motivation for doing so is to merge segments on the boundary so that the pieces appears as a 3D solid when manipulated as suggested by col. 9 lines 29-34. Therefore, it would have been obvious to combine Ross with Ishisaka to obtain the invention as specified in claims 15.17.

With regard to **claim 23** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose seismic, MRI, and CT data. Ross discloses seismic, MRI, and CT data at col. 5 lines 47-56 and col. 4 lines 25-27. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Ross with Ishisaka. The motivation for doing so is to capture images of human or geographical surface in three-dimensional image. Therefore, it would have been obvious to combine Ross with Ishisaka to obtain the invention as specified in claim 23.

With regard to **claim 25** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose geologic horizons. Ross discloses geologic horizons at

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col. 5 lines 46-56. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Ross with Ishisaka. The motivation for doing so is to gain new insight by bisecting or otherwise cut into other types of scientific reconstruction as suggested at col. 5 lines 50-53. Therefore, it would have been obvious to combine Ross with Ishisaka to obtain the invention as specified in claim 25.

With regard to **claim 27** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose stereo display. Ross discloses stereo display at col. 15 lines 1-5. Note, that the stereo display is needed to display a 3D image being processed. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Ross with Ishisaka. The motivation for doing so is to display the images of human or geographical surface in three-dimensional image. Therefore, it would have been obvious to combine Ross with Ishisaka to obtain the invention as specified in claim 27.

With regard to **claims 28-29** Ross discloses features displayed on a stereo net according to the orientations of the feature and allowing an interpreter to interactively edit using display at col. 11 line 58 to col. 12 line 5.

11. Claims 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishisaka (US 6,289,126) in view of Schultz et al. (hereinafter, "Schultz") (US 2001/0002315 A1) as applied to claims 1-2, 4, 6-7, 11-12, 14, 24, 26, and 30-31 above, and further in view of DeYong et al. (hereinafter, "DeYong") (US 6,577,757).

With regard to **claims 18-22** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose measure of confidence associated with features. DeYong discloses this in Table 10 at col. 29 and also at col. 30 lines 7-63. At the time of the invention, it would

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have been obvious to a person of ordinary skill in the art to combine the teaching of DeYong with Schultz and Ishisaka. The motivation for doing so is determine whether the next point in the feature is on the object or outside and the highest measure of confidence tells one that that point should be part of the feature as suggested by DeYong at col. 6 lines 21-40 and col. 30 lines 63-67 as seen in Figure 25A. Therefore, it would have been obvious to combine DeYong with Schultz and Ishisaka to obtain the invention as specified in claim 18.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D. Patel whose telephone number is 571-272-7396. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

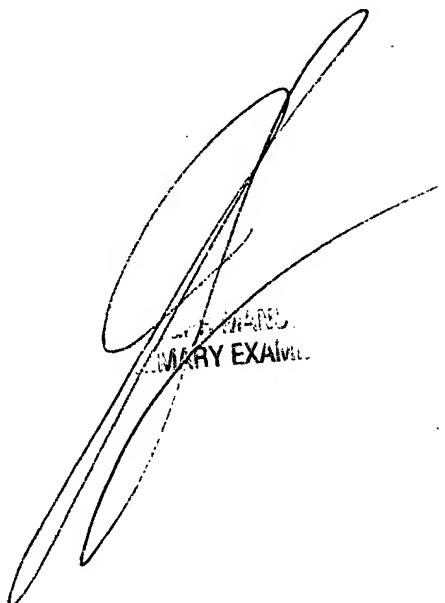
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shefali D Patel
Examiner
Art Unit 2621

September 8, 2005



SEP 8 2005
MARY EXAMINER